Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF R. LEWIS SHAW, P.E. South Carolina Department of Health and Environmental Control 2600 Bull Street Columbia, S.C. 29201 November 14, 1983 Mr. M.J. Sires Assistant Manager for Health, Safety and Environment DOE, Savannah River Operations Office Post Office Box A Aiken, South Carolina 29801 Re: Comments on draft EIS. Dear Mr. Sires: This office has completed its review of the Draft EIS for restart of L-Reactor, dated September 1983. In this connection, the Department offers the following comments from various program areas for your consideration. <u>Bureau of Solid and Hazardous Wastes Management.</u>	
FH-1	1. Page 4-22. A permit should be required for disposal of sludge from the sanitary waste treatment plant in the sludge pit near Central Shops area. I assume no other waste is handled here.	The disposal of sludge from the sanitary waste treatment plant is covered under the Clean Water Act. The sludge pit was in operation in 1979 when a construction permit was requested from SCDHEC under the provisions of the Clean Water Act. A resubmittal of this permit request was made in early 1984.
FH-2	2. Page 4-37. Are any liquids handled in the low level waste burial area? Radiological Health should be directly involved with this area in light of their experience at Chem-Nuclear in Barnwell.	No liquids containing radioactivity are buried in the low-level-waste burial ground.
FH-3	3. Page 5-4. It appears from ground-water monitoring data that the seepage basins in the F and H areas (fuel fabrication) have already contaminated ground water above IPDWS for Hg. These basins are under interim status as hazardous waste	The State of South Carolina has been notified about the nature and extent of ground-water contamination resulting from the use of seepage basins in F-, H-, and M-Areas. A ground-water monitoring report is submitted quarterly to SCDHEC. In

Comment number	Comments	Responses
	facilities. Owners and operators of such facilities are required to: a. Notify, in writing, the State within seven (7) days of such finding; b. Determine the cause, if possible, and; c. Determine the extent or potential of contamination and discontinue operation until the Department determines what action is to be taken. In light of the above, the Department cannot concur with any incremental increase of Hg levels in the ground water. The EIS states that the increased level of Hg in the ground water is estimated to be 0.008 ppm.	addition, SCDHEC has just completed its review of the SRP "Ground-Water Protection Implementation Plan." This action plan will be the subject of a separate NEPA review. The continued use of the F- and H-Area seepage basins is being evaluated and this topic will be covered in the separate NEPA review of the SRP "Ground-Water Protection Implementation Plan." Also see the responses to comments DA-6 and DA-7.
FH-4	4. Page 5-6. Coal ash disposal activities should be permitted by the State.	Coal ash disposal activities are regulated by the Resource Conservation and Recovery Act of which activities controlled by the Atomic Energy Act are exempt. Therefore, these activities are not subject to state permitting under RCRA. Also see the response to comment FH-1. DOE practices will be compatible with SC requirements.
	Bureau of Radiological Health.	
	Paragraph 4.1.2.1	
FH-5	It is stated that there will be "more frequent" target discharge from the L-Reactor than from the other operating reactors. Will the increased activity make a qualitative difference in the level of safety of the reactor operations? Has the increased level of operations been reflected in the dose projections given in Appendix B? In particular, is it reflected in the incremental effects of the L-Reactor compared to the overall emissions of the Plant?	More frequent target discharges anticipated from L-Reactor (Section 4.1.2.1 of the EIS) will not make a difference in the level of safety of reactor operations. The releases of radioactivity from L-Reactor and associated support facilities are based on the planned operating mode of the reactor. Dose projections in Appendix B are based on these anticipated releases and are reflected in the incremental effects of L-Reactor as compared to the overall emissions of the plant.
	Paragraph 4.1.2.2	
FH-6	Has any consideration been given to reducing the discharge of tritium from the discharge basins into Steel Creek? What are the alternatives?	The source of most of the tritium expected to be discharged from L-Reactor to seepage basins is the purge water from the disassembly basin. The disassembly basin is the location where fuel and target elements are temporarily stored following discharge from the reactor. Tritium and other radionuclides are carried into the disassembly basin as process water adhering to fuel and target assemblies and as water of hydration in aluminum oxide on the assemblies. DOE has implemented measures to minimize carryover of contaminated moderator to the disassembly basin.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
		Alternative methods of disposal of disassembly basin water are described in Section 4.4.3 of the EIS. The methods considered were: o Discharge to seepage basins o Direct discharge to Steel Creek o Evaporation of tritium to the atmosphere o Detritiation of reactor moderator, the source of the tritium.
	Paragraph G.4.1.19	
FH-7	Have any modifications to the fuel charging and discharging machine been required as a result of the recent incident during which an irradiated fuel element was stuck between the reactor and the discharge canal for several hours? Are the conclusions of this section still valid?	No modifications were made; none were required. The safety system functioned as designed. The conclusions in the section are valid.
	Paragraph G.5.5	
FH-8	Are the Pillinger and Marter (1982) dose conversion factors comparable to the dose conversion factors in Reg Guide 1.109? Are they comparable to other standard dose conversion factors?	The dose conversion factors of Pillinger and Marter (1982) are the same as those described in Reg. Guide 1.109. However, the factors were obtained from a more recent Nuclear Regulatory Commission publication, i.e., G. R. Hoenes and J. K. Soldat, "Age-Specific Radiation Dose Commitment Factors for a One-Year Chronic Intake," U.S. Nuclear Regulatory Commission NUREG-0712, (1977).
	Paragraph H.2	
FH-9	Have the size and shape of ingestion planning zones been calculated? The State will determine what areas should be included in any emergency planning zones in order to provide a level of protection which is comparable to that provided by EPZs around commercial power plants. Given that State agencies have no direct control over Plant operations, we are necessarily dependent on	The ingestion pathway EPZ discussion has been expanded in the EIS. The zone now includes a corridor 2 km wide down the Savannah River, the Port Wentworth water service area, the Savannah River delta and the Beaufort-Jasper Counties Water Authority area (essentially all of Beaufort and Jasper Counties).

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	information from Plant officials in order to determine a basis for planning and to recommend protective actions in the event of an accident. Will a fifty-mile ingestion EPZ provide an adequate margin of safety?	
	Appendix J	
FH-10	The list of Studies in Progress includes several issues which have concerned the Department. What progress has been made toward installing systems to reduce or prevent emissions of noble gasses? Are methods to reduce tritium releases available? What alternatives exist to the present system of discharge to Steel Creek (and other Plant streams)?	Alternatives to improve the existing SRP airborne activity confinement system are discussed in Section 4.4.1 of the EIS. Studies in progress for all the alternatives except low temperature adsorption are aimed at the development of more accurate cost estimates and measures of effectiveness of the alternatives. Experimental research is in progress to determine the effectiveness and feasibility of the low temperature adsorption technique. Approximately two years will be required to complete the experimental program. A moderator detritiation facility to reduce tritium releases is discussed in Section 4.4.5 of the EIS. In Section 4.4.4, alternative disposal methods for disassembly basin purge water are discussed. Alternatives include direct discharge to seepage basin, evaporation, discharge to Steel Creek, and moderator detritiation.
	Conclusion	
FH-11	The Draft EIS contains information about the release of radioactive material from routine operations and from accidents. The analysis of projected doses to members of the public is consistent with similar calculations of the Bureau. On the other hand, there is less information to compel the conclusion that the proposed action can only be done in one way. The Bureau concurs that the operations, as described, will probably not result in excessive exposures outside the Plant boundary, although we are not convinced that further reductions are impossible.	Further reductions are always possible at some price, e.g., dollars, efficiency, and production. All timely, cost-effective alternatives have been considered in preparing L-Reactor for operation.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	Bureau of Water Pollution Control.	
FH-12	1. The direct discharge to Steel Creek (reference case) is and would continue to be a thermal violation of the State water quality standards. 2. The once-through spray canal system would result in cooling the discharge by only 3°C (5.4°F) before entering Steel Creek. This system would cause a thermal violation of the State water quality standards in Steel Creek. Wetlands and habitat would still be reduced, as per the direct discharge. 3. The small impoundments-rubble dams system utilizes a series of small dams on Steel Creek for cooling and, hence, is no different from the direct discharge alternatve except that the water is cooler by the time it reaches the Savannah River Swamp. Water quality standards would still be violated in Steel Creek. Habitat reduction would be significant. 4. The small impoundments - 500-acre lake system would utilize larger lakes on Steel Creek than the rubble dam alternative but the water quality standards would be violated in Steel Creek. Habitat reduction would be significant. 5. Once-through cooling by diversion to Pen Branch would result in no thermal impact upon Steel Creek. However, it would impact the upper unaffected reaches of Pen Branch. This would " solve" L-Reactor's problem in regard to Steel Creek but it would just transfer to another creek system. Water quality standards would be violated in Pen Branch. 6. *The lake-canal diversion to Pen Branch would use a lake on* Steel Creek for first cooling, then send it over to Pen Branch. Water quality standards would be violated in Steel Creek and Pen Branch. Lake temperature would be greater than 90°F. 7. The 500-acre lake or rubble dams combined with spray cooling would still use Steel Creek for cooling purposes and water quality standards would be violated in Steel Creek.	Section 4.4.2 of the EIS, which discusses cooling-water mitigation alternatives, has been revised based on public comments received on the draft EIS. Specifically, Section 4.4.2 has been revised to provide a detailed discussion of additional combinations of various cooling-water systems. Section 4.4.2, each of the cooling-water mitigation systems is evaluated for attaining the thermal discharge limits of the State of South Carolina. Section 4.4.2 and a revised Appendix I, Floodplain/ Wetland Assessment, discuss the wetland impacts of each of the systems considered. The Department of Energy has been reviewing and evaluating alternative cooling-water systems for L-Reactor. Based on these reviews and evaluations, and consultations with representatives of the State of South Carolina regarding a mutually agreed-upon compliance approach, a preferred cooling-water mitigation alternative is identified in this EIS. This preferred cooling-water alternative is to construct a 1000-acre lake before L-Reactor resumes operation, to redesign the reactor outfall, and to operate L-Reactor in a way that assures a balanced biological community in the lake. The Record of Decision prepared by the Department on *this EIS will state the cooling-*water mitigation measures that will be taken which will allow L-Reactor operation to be in compliance with the conditions of an NPDES permit to be issued by the State of South Carolina.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	8. The mechanical draft recirculating cooling towers alternative would not meet the 90°F stream temperature limit, thus, water quality standards would be violated in Steel Creek. But is does appear that a cooling tower combined with a spray canal system alternative (not evaluated) would meet State standards. The delta 5°F criteria might not be met though, owing to the flows involved.	
	9. The cooling tower (once-through) with pipeline to the Savannah River Swamp (Steel Creek Delta) alternative could be an approvable alternative in that water quality standards would be met and only a "minor" impact on wetlands would occur.	
	10. Recirculation through creation of L-Pond would use Steel Creek for cooling purposes and would violate the State water quality standards.	
	11. Recirculation through KAL Pond created by the damming of Steel Creek, Pen Branch, and Indian Grave Branch would still violate water quality standards for these streams.	
	12. Recirculation through creation of High-Level Pond would involve the damming of Pen Branch and would violate water quality standards in the stream and have a discharge from the pond of higher than 34°C (94°F).	
	13. Recirculation through PAR Pond would lead to increased thermal stress on the fish in PAR Pond and increase its summer temperature to over 90°F, thus violating water quality standards.	
	14. The direct discharge with fish management alternative "writes off" Steel Creek and simply uses restocking Savannah River fish as a means of replacing the Steel Creek environment.	
	15. Direct discharge with power reduction would still lead to minimum discharge temperature of 40°C (104°F) to Steel Creek. Water quality standards would be violated.	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	If you have any questions regarding these comments, please contact us. Very truly yours, R. Lewis Shaw, P.E. Assistant Deputy Commissioner Environmental Quality Control	

Comment number	Comments	Responses

STATEMENT OF JAMES A. TIMMERMAN, JR.

South Carolina
Wildlife & Marine
Resources Department

November 14, 1983

Mr. M.J. Sires, III
Assistant Manager
Health, Safety & Environment
Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, S. C. 29801

Re: Draft EIS - L-Reactor Operation, Savannah River Plant, Aiken, S.C.

Dear Mr. Sires:

Personnel of the South Carolina Wildlife and Marine Resources Department have reviewed the Draft Environmental Impact Statement - L-Reactor Operation, Savannah River Plant and offer the following comments.

The Draft EIS adequately describes the existing environmental conditions and the expected impacts on fish and wildlife resources from the restart of the L-Reactor. These impacts are summarized as follows:

....withdrawal of 4% of the average annual riverflow, and 7% of the 7-day, 10-year low flow of the Savannah River.

....entrainment of 7.7 million fish eggs and 7.6 million fish larvae annually.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	....destruction of approximately 730 acres of wetland habitat in Steel Creek and the Savannah River swamp. ....an additional loss of 7 to 10 acres of wetland annually. ....growth of the Steel Creek delta at a rate of 3 acres/year. ....restricted access by fishes to approximately 2,500 acres of wetlands as a result of the thermal plume. ....release of radiocesium to the aquatic environment and the potential contamination of downstream fish, shellfish and other organisms. Thus, it is apparent from the data presented in the DEIS that the restart of the L-Reactor as proposed will have a significant adverse impact on fish and wildlife resources in the project vicinity.	
FI-1	The DEIS states that "Studies during the last two decades have indicated that no major changes in aquatic species in the Savannah River have occurred as the result of operations of SRP." The studies conducted by the Academy of Natural Sciences of Philadelphia and reported in Thermal Effects on the Savannah River (October 23, 1981), state that "from this study of the species which have been collected since 1951 in the vicinity of the Savannah River Plant, there was no definite evidence that the addition of heat, either by Four Mile Creek or by Steel Creek, has been detrimental to the aquatic communities at our Stations 3 and 5. Because each of these stations were located about 6 miles downstream from the source of heated effluent (Four Mile Creek and Steel Creek), the effects of the heated plumes were not studied. The stations were beyond the area where a plume effect might have been damaging." The report also found that there were substantial shifts in aquatic species at the sampling stations during the course of the study,	Aquatic ecological monitoring studies have been expanded to include areas and quantitative studies of representative aquatic species. These studies are described in Chapter 6 of the EIS. In addition, further studies will be implemented as part of the comprehensive cooling-water program.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	but that these shifts could not be definitely related to impacts caused strictly by temperature effects. It also appears that no evaluation was made of potential impacts on population levels of important aquatic species.	
FI-2	When the cumulative impacts of the SRP operations are considered, the populations of aquatic organisms could be adversely impacted. Approximately 19% of all fish eggs and larvae passing the SRP intakes would be entrained and destroyed. Approximately 1,600 acres of wetlands in the corridors of the thermally impacted streams would be adversely impacted, as well as 5,000 acres of the adjacent Savannah River swamp. Therefore, the extent of the adverse impacts on fish and wildlife resources is much greater when the entire SRP operations are considered.	The cumulative effects of all SRP operations are addressed in Sections 5.2.4 and 5.2.5 of the EIS. DOE is conducting thermal mitigation studies to select cooling-water systems for the currently operating SRP reactors (K and C) to effect mitigation of the environmental effects of thermal discharges from these reactors.
FI-3	The DEIS considers the restart of the L-Reactor, as scheduled, to be the only viable alternative that will produce the quantity of weapons material desired on the time schedule desired. We do not feel that this is a proper approach to the evaluation of potential alternatives, and more consideration should be given to the other production alternatives.	Section 2.1 describes production options to the L-Reactor; this section has been expanded. The DOE has analyzed all possible full-production options; basically, the only option to the L-Reactor to produce equivalent amounts of plutonium is another production reactor. Existing production reactors were considered, as was a new production reactor. A new production reactor was dismissed because it would have no effect on the near-term need for plutonium, which the L-Reactor restart will satisfy. In addition to full-production options, Chapter 2 also analyzes partial-production options (1) from the standpoint of offsetting the plutonium production that would be lost if the L-Reactor restart is delayed because mitigation alternatives are being implemented and (2) as an alternative to the L-Reactor itself. The potential combinations of partial-production options that provide the greatest material production still provide only a small fraction of the needed defense materials that could be produced by L-Reactor.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FI-4	A number of alternatives were presented as possible mitigation measures for the adverse impacts resulting from the restart of the L-Reactor. However, it is clear that these mitigation alternatives are intended to be after-the-fact measures to compensate for resource losses. We believe that they should be given full consideration as means of avoiding adverse impacts prior to the restart of the L-Reactor. While a variety of possible mitigation measures are discussed, the DEIS does not propose that any of these alternatives be implemented. In fact, we do not believe that any of the presented alternatives will adequately mitigate for wetland and fish and wildlife losses resulting from the restart of the L-Reactor with once-through cooling as proposed.	Section 4.4.2 of the EIS, which discusses cooling-water mitigation alternatives, has been revised based on public comments received on the draft EIS. Specifically, Section 4.4.2 has been revised to provide a detailed discussion of additional combinations of various cooling-water systems. In Section 4.4.2, each of the cooling-water mitigation systems is evaluated for attaining the thermal discharge limits of the State of South Carolina. Section 4.4.2 and a revised Appendix I, Floodplain/Wetland Assessment, discuss the wetland impacts of each of the systems considered. The Department of Energy has been reviewing and evaluating alternative cooling-water systems for L-Reactor. Based on these reviews and evaluations, and consultations with representatives of the State of South Carolina regarding a mutually agreed upon compliance approach, a preferred cooling-water mitigation alternative is identified in this EIS. The Record of Decision prepared by the Department on this EIS will state the cooling-water mitigation measures that will be taken which will allow L-Reactor operation to be in compliance with the conditions of an NPDES permit to be issued by the State of South Carolina.
FI-5	Therefore, we would have to recommend that an appropriate cooling-water alternative (i.e., cooling towers, etc.) be implemented prior to the restart of the L-Reactor as a means of avoiding the adverse impacts on fish and wildlife resources and that appropriate fish stocking be conducted to mitigate for fishery losses from entrainment and impingement. Sincerely, James A. Timmerman, Jr. Executive Director JATjr/sa	Comment and recommendation noted. The Record of Decision prepared by DOE on this EIS will state any mitigative measures, including cooling-water mitigation alternatives, that will be taken. DOE has committed to attain acceptable compliance for all major thermal discharges at SRP.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF DR. E. W. MURBACH	
	I am Wesley Murbach. I am a resident of Aiken.	
	Based on what you said, my comments are probably not really in order. However, it is my understanding, from what we've said earlier, that the L-Reactor has been operated for years, so we should have a good idea what the environmental impact is. Therefore, I think this document (indicating) is far more than adequate.	Comments noted.
	I'd just like to go on record as a taxpayer that I think we spent far too much money on this sort of thing. I realize I'm probably a voice crying in the wilderness, but as to the credentials, I was involved in our environmental study in 1947, so I feel I know something about the environment, too.	
	Thank you.	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF BRUCE BLANCHARD United States Department of the Interior Office of the Secretary Washington, D.C. 20240 ER-83/1211 Nov 28 1983 Assistant Manager for Health, Safety and Environment Savannah River Operations Office Aiken, South Carolina 29801 Dear Mr. Sires: Thank you for the letter of September 12, 1983, transmitting copies of the Department of Energy's (DOE) draft environmental impact statement for the L-Reactor Operation, Savannah River Plant (SRP), Aiken County, South Carolina. Our comments are presented according to the format of the statement or by subject.	
	Fish and Wildlife Resources	
FK-1	The draft statement clearly and accurately addresses baseline fish and wildlife resource conditions and anticipated individual and cumulative adverse impacts arising from the base case and a host of alternative measures. It is clear that the identified preferred alternative, operating L-Reactor with direct discharge of cooling water into Steel Creek and subsequent mitigation measures, will result in significant impacts to fish and wildlife resources.	Section 4.4.2 of this final EIS has been revised to provide a discussion of a number of additional combination of potential thermal mitigation measures. Based on the review and evaluation of these alternatives, and consultations with representatives of the State of South Carolina regarding a mutually agreed upon compliance approach, a preferred cooling-water mitigation alternative is identified in this EIS. This preferred cooling-water alternative is to construct a 1000-acre lake before L-Reactor resumes operation, to redesign the reactor outfall, and to operate L-Reactor in a way that assures a balanced biological community in the lake. The Record of Decision on this EIS will state any mitigation measures that will be taken prior to or after the restart of L-Reactor.
	Thermal Effects and Mitigation	
FK-2	The draft statement acknowledges on pages 4-8 to 4-10 that the effects of releasing hot cooling water to Steel Creek at	See the response to comment FK-1.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	temperatures ranging up to 80°C (176°F) and at a rate of about 12 times its natural average flow would eliminate this stream and its associated wetlands as a living environment as far down-stream as the Savannah River. We concur with the conclusion on page 4-12 that, among the alternatives considered, complete recirculation through cooling towers would be preferred. This alternative would reduce both the temperature and quantity of flow discharged to Steel Creek to within the non-lethal range and would also avoid resuspension and transport of radiocesium to the Savannah River.	The Record of Decision prepared by the Department of Energy on this final EIS will consider a number of factors in reaching a decision on the implementation of a specific thermal mitigation measure. These factors will include the impacts from thermal discharge as well as costs and the need for defense nuclear materials. The restart of L-Reactor will comply with the conditions of an NPDES permit issued by the State of South Carolina, and radioactive releases from L-Reactor will meet DOE radiation protection standards that are comparable to those of NRC (10 CFR 20) for a production facility (i.e., 500 millirem to the whole body in any one calendar year).
FK-3	The other alternatives, which would not reduce temperature and quantity of flow at the point of discharge to the environment, would simply shift the lethal effects to other streams and apparently would be more expensive than cooling towers.	A number of factors are delineated in this EIS with respect to thermal mitigation measures. The information provided demonstrates that the sum of the capital, operating/maintenance, and power loss costs averaged over a 20-year period for lakes with spray cooling and the diversions to Pen Branch, for example, are less than half of those for cooling towers. The cooling-lake alternatives, which would afford some protection to wetlands and fisheries and reduce the transport of radiocesium, are less costly in comparison with cooling-tower options. The diversions to Pen Branch are the only two thermal mitigation alternatives considered in this EIS that would divert the thermal discharge to another stream. These two alternatives are markedly less expensive than cooling towers having complete recirculation.
FK-4	The likelihood of the seasonal occurrence of fog and/or any other micro-climatic changes caused by the direct discharge of the heated cooling water into Steel Creek should be presented in the final statement.	Section 4.4.2 of the EIS has been modified to reflect the maximum range of range of fogging, icing, and salt deposition conditions resulting from cooling tower blowdown. These impacts are minor and bound similar effects from the other cooling-water alternatives.
FK-5	The draft statement does not clearly indicate the range of mitigation alternatives being considered as "subsequent mitigation measures under DOE's preferred alternative." If only the "other alternatives" listed in Section 4.4.2.4 are candidates for subsequent mitigation (i.e., thermal cogeneration, low-head hydropower, modified reactor operation, fish management and/or restocking programs, protection of similar wetlands, or support	In the draft EIS the reference to "subsequent mitigation measures" was intended to reflect all of the thermal mitigation measures in Section 4.4.2 (i.e., alternative cooling-water systems and other alternatives). This reference has been clarified in the final EIS.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	of fisheries research), then adequate compensation for lost resources would not be available. Should the range of "subsequent mitigation measures" be wider in scope than indicated above, certain of the predicted impacts could be reduced in the long-term. For example, switchover to full recirculation cooling towers would indicate wetland recovery again and reduce impingement and entrainment. However, a direct discharge restart, even with implementation of this environmentally "best" subsequent mitigation measure, would result in immediate loss of 15 years of post-recovery succession in the Steel Creek system. It also would add to the permanent impact associated with delta growth. Scoured sediment from Steel Creek would be deposited over wetlands, increasing elevations and changing substrate types, such that post-shutdown recovery would not necessarily reflect pre-operation communities or values.	The EIS presents the predicted impacts of implementating the thermal mitigation measures either prior to or after the restart of L-Reactor. Implementation of a cooling-water mitigation system after the restart of L-Reactor identifies the loss of the post recovery succession in Steel Creek in the EIS. Some increased sedimentation from flow effects would occur and primarily effect the rate of delta growth. Implementation of an alternative cooling-water system after the restart of L-Reactor would again allow successional recovery of impacted areas.
FK-6	Certain of the mitigation options presented in the draft statement do not conform to the Fish and Wildlife Service's Mitigation Policy as published in the Federal Register on January 25, 1981. The policy establishes four resource categories to establish mitigation levels consistent with the fish and wildlife resource values involved. The floodplain habitat to be impacted by the L-Reactor restart falls into Resource Category 2 as habitat "of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section." The mitigation goal for this category calls for no net loss of in-kind habitat value. None of the replacement mitigation alternatives which include restocking impacted fish species, protecting wetlands similar to the Steel Creek Swamp system, and conducting or supporting fisheries research meet the stated mitigation criteria. However, certain of these mitigation options, particularly restocking of impacted fish species, would be a viable option to pursue as mitigation for the projected impingement and entrainment impacts.	The Fish and Wildlife Service's Mitigation Policy provides a framework for mitigation recommendations by Service employees. This policy does not preclude or condition the "balancing" of potential environmental consequences and other considerations by other Federal agencies in their decisions based on NEPA documentation. To ensure that the Department of Energy in reaching its Record of Decision on this EIS is aware of the Service's classification, this final EIS has been modified to include appropriate statements that the floodplain habitat to be effected is considered by the Service to be a Resource Category 2. Also see the response to comment FK-1.
FK-7	Therefore, we do not concur with the preferred alternative of operating L-Reactor with direct discharge of cooing water into Steel Creek and subsequent mitigation measures. The fish and wildlife resource impacts associated with this alternative are clearly identified in the draft statement and include the loss of 1,000 acres of wetlands and associated functions and increases in impingement and entrainment of Savannah River fishes.	See the response to FK-1 regarding cooling-water mitigation alternatives.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FK-8	We recommend the complete recirculation of cooling water through mechanical-draft cooling towers which is identified in the draft statement as the "preferred alternative to minimize the adverse environmental effects of use of river water, impact of thermal effluents, loss of habitat and wildlife, water contamination and loss of archeological resources."	The recommendation is acknowledged. The direct discharge of cooling water as documented in the EIS is not expected, however, to result in the loss of archeological resources. Also see the response to comment FK-2.
FK-9	We strongly recommend this alternative coupled with interim implementation of the two most efficient partial options (accelerated use of the Mark 15-lattice at SRP and production of 5 percent plutonium-240 at N-Reactor) as the only alternative that would avoid significant environmental damage before start-up.	The partial production options, or combinations of options, can neither provide the needed defense nuclear materials requirements nor fully compensate for the loss of the material that would be produced by L-Reactor.
FK-10	If, however, DOE retains their selected alternative because of documented overriding national security concerns, then we request that they develop an appropriate plan to mitigate project impacts. We recommend that DOE contact the Field Supervisor, Charleston Field Office, Fish and Wildlife Service, Post Office Box 12559, Charleston, South Carolina 29412 (803-724-4707; FTS 677-4707) to discuss and develop a mitigation plan.	The Department of Energy is cooperating with the Fish and Wildlife Service to develop a Habitat Evaluation Procedure (HEP) plan for the Steel Creek system with the implementation of the preferred thermal mitigation system for L-Reactor. The HEP will identify the value of habitat to be gained or lost with implementation of the preferred L-Reactor cooling-water alternative for use in assessing further mitigation. If required, DOE will implement additional mitigative measures that might be identified through the HEP process dependent on Congressional authorization and appropriation.
	Groundwater Contamination	
FK-11	It is stated on page 4-55 that an analysis has been made of the consequences of a class 9 accident; i.e., one having low probability but potentially great severity. The analysis was reportedly made on a basis comparable to that currently used to assess such accidents for light-water reactors. However, the results of the analysis as reported in the environmental statement (App. G) do not include the potential for a meltdown of the core through the basemat of the reactor. If such an	Reference Durant and Brown (1970), cited on page 4-45, provides an "Analysis of Postulated Core Meltdown of an SRP Reactor." This reference specifically addressed on page 60 the possible minor penetration of concrete floor surface and demonstrated that no significant depth of concrete floor would be penetrated. In particular, partial cooling of any molten fuel mass at elevation - 40 ft could be provided by five separate systems identified on page 35 of Durant and Brown (1970), and would preclude the possibility of penetrating the concrete basement floor.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	occurrence is evenly remotely possible, the statement should evaluate potential groundwater impacts and their mitigation. If such an event is completely impossible, this should be stated.	These systems include the confinement heat removal system installed in 1979 as noted in Appendix J.
FK-12	A scoping letter by Alfred H. Vang, Executive Director of the South Carolina Water Resources Commission, on page K-127, refers to the existence of a large number of wells on the project site prior to the establishment of the SRP. Mr. Vang writes that the current status of these wells is unknown; there is concern that if they were improperly sealed, they might provide avenues through which contaminants could move from shallow water-bearing zones into the major aquifers at greater depths. Our review of the environmental statement has not revealed a response to this concern. The statement should adequately address the current status of the pre-project wells and evaluate the potential for related groundwater impacts.	The text of Section 3.4.2.3 has been modified to reflect this concern.
FK-13	It is stated on page F-88 that uranium found in the contaminants of the M-Area seepage basin will require about 700 years to reach groundwater. The analyses of Tables F-14 and F-15 indicate that mercury and nitrate have already reached groundwater in appreciable amounts. The statement should discuss the ultimate fate of the uranium, mercury, nitrate and other significant constituents such as lead that may reach groundwater later.	Chapter 5 of the EIS has been modified to provide a clearer discussion of the incremental releases from support facilities of radioactive and nonradioactive discharges to the F-, H-, and M-Area seepage basins. With respect to the M-Area settling basin, present discharges to the settling basin will be discontinued by April 1985, and will instead be treated by a wastewater treatment plant in accordance with a State of South Carolina NPDES permit. The migration of mecury and nitrate is different than that for uranium. The quantities of uranium in the soils of the M-Area do not migrate in the same manner as nitrate and are expected to become associated with the clay materials in the subsurface because of its relatively high distribution coefficient. Ultimately the uranmium is likely to reside in the basal Congaree and upper Ellenton clay units, which are thick, effective confining units throughout the SRP. The small quantities of mercury and lead, and the quantities of nitrate that may reach the water table will be removed by interceptor/recovery wells as part of the planned remedial action program for the M-Area.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FK-14	*The total groundwater flux through the SRP area is said to be* about 100 cubic meters per minute, which is about 1.7 times the sum of any projected use for L-Reactor and the current use in the area (page 4-7, page F-71 and F-72). The statement should make clear how much of the total flux is actually available to wells without having significant effects on regional water levels and surrounding well use - particularly downgradient wells. Hydrographs of Tuscaloosa and Ellenton wells on page 3-35 suggest a fairly close correlation between increases in withdrawal rate at SRP and water-level trends. We suggest that the impact analyses should project areally extensive declines in water levels that will result from increased withdrawals and predict where water levels will eventually stabilize.	The FEIS has been revised to reflect current SRP ground-water pumpage from the Tuscaloosa, as well as incremental and cumulative use projections (Appendix F, and Chapters 4 and 5). In 1982 the SRP withdrew about 23.8 cubic meters per minute; in 1983 this value increased to 27 cubic meters per minute. Process water conservation practices and the placing of facilities on stand-by will reduce the SRP withdrawal rate to about 25.4 cubic meters per minute including pumping in L-Area and incremental pumping at facilities supporting L-Reactor operation. If L-Reactor was placed on stand-by approximately 4.9 cubic meters per minute used in support of L-Reactor operation would not be required. When the DWPF and FMF are operational the total withdrawal rate by SRP is expected to increase to about 26.4 cubic meters per minute. This compares to a value of 37.8 cubic meters per minute suggested by Siple (1967) suggested as a practical upper pumping limit for 1960 wells when SRP was pumping about 18.9 cubic meters per minute. For conservatism, the ground-water flux through the Tuscaloosa at and adjacent to SRP is estimated to be 51 cubic meters per minute, the lower bound estimate of Marine and Routt (1974). In 1983, ground-water withdrawal within their study area was about 38.5 cubic meters per minute (11.5 from offsite users and 27.0 from SRP) which is about 75 percent of the estimated flux. Thus, pumping at SRP does not appear to be depleting the Tuscaloosa Aquifer, but rather water levels are responding to pumping by developing a new equilibrium piezometeric surface. Also see the responses to comments AJ-1 and BT-7.
FK-15	The sorptive properties of sedimentary materials beneath the SRP are said to mitigate impacts of radionuclides moving through these materials (e.g., page B-31). The statement should discuss ion-exchange capacities and other pertinent properties of the various types of sediments, indicating typical values or ranges of values. In addition, previous operations have provided sufficient history of radionuclide movement at the SRP so that the significance of the sorptive capabilities of the sedimentary materials in place can be assessed separately from the mere retarding influence of groundwater flow; this distinction will be significant in anticipating delayed impacts.	Based on studies on SRP seepage basins, measured distribution coefficients (K_d) of elements in typical SRP soils are: Element / K_d Sr 100 Cs 730 U 60 Pu 1400 Am 1000 Cm 1000

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
		For other elements, where K_d values are not available, K_d is conservatively assumed to be zero (i.e., elements will not be retarded by ion exchange and will move at the velocity of ground water). Ground-water velocities in the vicinity of SRP seepage basins typically range from 0.15 to 0.30 meter per day and distances to outcrop areas range from 365 to 1220 meters.
FK-16	Low concentrations of chlorinated solvents have been found in a Tuscaloosa water production well (page 5-6). High concentrations have been found in the shallower groundwater of the M-Area (pages F-88 through F-90). Mitigation at present consists of pumping the contaminated water from the shallower aquifers and using a pilot airstripper facility to improve the groundwater quality. The efficiency of this method, probable degree of recovery of contaminated groundwater and potential for increasing concentrations of the chlorinated solvents in the Tuscaloosa aquifer should be assessed.	The remedial action program for the M-Area consists of nine 200-foot deep interceptor/recovery (I/R) wells and an air stripper with a capacity of 1.5 cubic meters per minute, about 1.8 times that of the current discharges to the M-Area settling basin. This system is expected to remove about 30 tons of chlorinated hydrocarbons per year during the first few years of operation; thereafter the removal rate will decrease as the contaminant concentrations decrease. The cone of depression resulting from pumping by the I/R system will be extensive. For example, the area within the 3 meter drawdown isopleth is expected to have an area of several hundred acres after 10 years of pumping. The remedial action program is designed to prevent and eliminate any significant concentrations of chlorinated hydrocarbons in the Tuscaloosa Aquifer. Both the State of South Carolina and the EPA are actively involved in the review of ground-water protection measures including the remedial action program at SRP. The ground-water protection program will be the subject of a separate NEPA review.
	Radioactive Releases to Streams	
FK-17	We found no mention of the possibility of severe leaks in the heat exchangers in the discussion of accidents. Small leaks of reactor process water into the once-through cooling water in the heat exchangers are stated to be the cause of routine radioactive releases to Steel Creek (page 4-25). This raises the question of whether severe leaks are also possible and, if so, whether they could occur coincidentally with any accidents affecting the core and the reactor process water. In any case, accidental releases of radionuclides in liquids discharged to Steel Creek should be discussed and the maximum quantities that could enter the Creek should be estimated. Although the resulting immediate dose may be smaller than that due to airborne emission, the release of long-lived radionuclides to streams	Severe leaks of moderator to the cooling-water in the heat exchangers can be readily detected by redundant radiation detectors on the effluent side of the heat exchangers. If abnormal radiation levels are detected, the reactor would be shutdown for remedial action. The remaining heat exchangers (total of 12) would provide sufficient capacity to remove decay heat.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	will be a matter of continuing concern for years after the event (as in the earlier releases of radiocesium) and should not be overlooked.	
	Confinement	
FK-18	In general the subject of confinement versus containment systems for the L-Reactor is not within our expertise; however, one subject is significant to groundwater resources. This is the retention of particulate matter and radioiodine, for which the proposed confinement system is said to have an efficiency of more than 99 percent. If this efficiency can be preserved during and following the most severe accident possible, we have no adverse comment. The confinement heat-removal system also provided should aid in protecting groundwater by ensuring the efficiency of the airborne-activity confinement system and controlling to some extent radioactive fluids.	The efficiency of the confinement system can be preserved during and following the most severe accident possible, in particular because of the Confinement Heat Removal System which was installed in 1979 as noted in Appendix J. The operability of the confinement system has been evaluated extensively in Durant, et al. (1966) and Durant and Brown (1970) as noted on page 4-45 of the draft EIS. The probability of fission product release in conjunction with an inoperable confinement system, estimated on page 47 of Appendix G, is considered so low as to exclude it from detailed analysis in the EIS.
	Specific Comments	
FK-19	2.1.3. Information regarding the relative deficiency in production of needed nuclear materials by use of the combination of two partial options (accelerated use of the Mark 15-lattice at the Savannah River Plant (SRP) and production of 5 percent plutonium-240 at N-Reactor), as compared with L-Reactor, is needed to provide a better base from which to judge these production options. If this is not classified information, a percentage figure of projected material production deficiency should be presented here.	Qualitative and limited information on the need for weapons-grade plutonium is presented in Chapter 1; this chapter has an expanded discussion on need to the extent permitted by law. Quantitative information on defense material requirements, inventories, production capacity, and projected material shortages is classified.
FK-20	4.0. The preferred alternative is operating L-Reactor with the direct discharge of cooling water and subsequent mitigation measures. DOE should identify these subsequent mitigation measures in the final statement.	The introduction to Chapter 4 has been modified to indicate the preferred cooling-water mitigation measure.
FK-21	4.1.1.5. Cooling-water reservoir (186-Basin). Some substantiation of the statement that there is no evidence of detrimental impact from annual processing basin flushing should be presented. Although removal of sediment load from adjacent waters is a natural river swamp function, sediment loading, such as described in a massive flushing effort, could overload the system. Contribution to delta growth as predicted should not be considered as presenting no detrimental impact.	Flushing the sediment from the 186-Basin will only temporarily increase the suspended load in Steel Creek to levels similar to those experienced during periods of high runoff. As noted in Section 4.4.4, which discusses alternative methods of 186-Basin sludge removal, the total amount of sludge removed annually from the basin is about 110 tons. Flushed into Steel Creek, this sediment will not "overload the system," nor will it contribute appreciably to the delta growth.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FK-22	4.4.2.3. Some alternatives include alternative cooling-water systems that will be incorporated into L-Reactor operation after initial restart with direct discharge into Steel Creek. These alternatives should clearly identify the immediate and direct loss of 15 years of biological succession in the Steel Creek system as a significant impact.	Section 4.4.2 and Appendix I have been modified to indicate that implementation of cooling-water mitigation after the restart of L-Reactor will result in the loss of biological succession in the Steel Creek system.
FK-23	4.4.2.4. Table 4-34 - Yearly operational and total costs for mitigation alternatives. The restocking alternative should include costs associated with future studies needed to determine the success of the stocking effort.	The costs listed in Table 4-34 of the draft EIS provide a comparison between the three mitigation alternatives. The estimated 5-year cost for fishery research primarily included collection of data on selected anadromous fish species and support for development of sturgeon culture techniques. This research would be necessary to support a determination of the success of the restocking effort. Should the decisionmaker decide to adopt the restocking program as a mitigative measure, more detailed costs would be developed to assess the longer term success of the restocking program.
FK-24	4.5. If DOE considers the loss of 300 jobs as a factor in the evaluation of the no-action alternative, then consistency should be maintained throughout the document, and jobs created by the various alternatives (i.e., cooling tower construction) should also be included as factors in the evaluation of these alternatives.	Section 4.4.2 has been modified to provide an estimated maximum number of construction personnel associated with each cooling-water alterantive.
FK-25	5.2.4.1. Table 5-15 - Distribution of forested wetlands for the principal streams of the SRP. Beaver Dam Creek should be included in this table. Since this section deals with incremental and cumulative impacts, another column breaking out forested wetlands that are still recovering from thermal impacts would be appropriate.	Table 5-15 of the Draft EIS presents the distribution of forested wetlands for the principal streams of the SRP. Beaver Dam Creek is a man-made canal, and thus is not considered to be a principal stream. Forested wetlands of the Steel Creek ecosystem that are recovering from thermal impacts are discussed in Section 3.6.1.2 and Appendix C of the EIS.
FK-26	6.1. The Mitigation Study initiated by DOE in agreement with the State of South Carolina warrants inclusion and discussion in this section.	The EIS has been modified to include provide a discussion of the thermal mitigation study in Section 6.1.4.
FK-27	8.0. It should be clearly stated that this section only addresses the base case alternative and the analyses contained in the subsections that follow would be significantly different for alternative actions.	Chapter 8 of the EIS has been modified to discuss unavoidable and irretrievable impacts of the reference case and the preferred alternative.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FK-28	8.1/8.2. *Delta formation resulting from L-Reactor represents a* permanent change in the nature of the wetlands in the Steel Creek system. By virtue of changing elevation and substrate, ecological succession on the delta after termination of L-Reactor operation will not necessarily proceed to a recovery community with the same characteristics or values that existed prior to this perturbation. In this regard, delta formation constitutes both an irreversible and irretrievable commitment of resources as well as a long-term impact that should be addressed *under Section 8.1. and 8.2.*	In 1951, *prior to the establishment of the Savannah River* Plant, the vegetation of the Steel Creek ecosystem (i.e., delta and swamp) was characterized by a closed canopy of mature cypress and tupelo (Sharitz et al., 1973). These flora were adversely impacted from 1954 to 1968 by the prior L-Reactor thermal discharge. Since 1968 when discharges from the L-Reactor terminated, the Steel Creek ecosystem has become revegetated through a process of natural vegetative succession. Structurally, the post-recovery vegetation is markedly different from the closed canopy of cypress and gum, and is characterized by scrub-shrub wetlands of willow and button bush. Some remnants of the original forest, however, are still present. Although the restart of L-Reactor without cooling-water mitigation would adversely impact the existing scrub/shrub wetlands, this would not constitute an irreversible or irretrievable commitment because these flora could become established again through the process of natural vegetative succession.
	Summary	
FK-29	The operation of the L-Reactor poses unclear risks to ground-water and the preferred alternative will have significant and unsatisfactory effects on fish and wildlife resources including their habitat. If DOE neither selects mechanical draft cooling towers nor develops a plan to adequately mitigate for impacts to fish and wildlife resources, then the Department of the Interior may choose to refer this project to the Council on Environmental Quality pursuant to 40 CFR 1504. We hope these comments will be helpful to you in the preparation of a final environmental impact statement. Sincerely, Bruce Blanchard, Director Environmental Project Review	As discussed in response to comment FK-1, in this final EIS the Department of Energy has identified a preferred cooling-water alternative; to construct a 1000-acre lake before L-Reactor resumes operation, to redesign the reactor outfall, and to operate L-Reactor in a way that assures a balanced biological community in the lake. In addition the Department will be working with the U.S. Fish and Wildlife Service in using HEP to identify and implement further habitat mitigation measures in conjunction with the preferred cooling-water mitigation alternative. Further, a separate NEPA review will be conducted on the SRP ground-water protection program.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF JOHN C. VILLFORTH, DIRECTOR National Center for Devices and Radiological Health Food and Drug Administration Rockville, MD 20857 Mr. M. J. Sires, III Assistant Manater for Health, Safety and Environment U.S. Department of Energy Savannah River Operations Office P. O. Box A Aiken, South Carolina 29801 Dear Mr. Sires: The National Center for Devices and Radiological Health Staff has reviewed the Draft Environmental Impact Statement (DEIS) related to the L-Reactor Operation at the Savannah River Plant, DOE/EIS-0108D, dated September 1983. Our staff has evaluated the public health and safety impacts associated with the proposed restart of L-Reactor operations, and has the following comments to offer:	
FL-1	1. The design of the reactor systems and radiological waste management as described in Section 2.2.2.5 provide adequate assurance that radioactive materials in the effluent will be maintained as low as reasonable achievable (ALARA). It appears that the calculated dose to individuals and to the population from effluent releases from L-Reactor operations and from other nearby nuclear facilities is within current radiation protection standards.	Comments noted.
FL-2	2. The environmental pathways identified in Section 4.1.2 and depicted in Figure 4.6 cover all possible emission pathways that could impact on the populations in the environs of the facility. The dose computational methodology and assumptions (Appendix B) used in the estimation of radiation exposure to individuals and to populations within 80 km. of the Savannah River Plant have provided the means to make reasonable	Comments noted. The revised Summary in this EIS contains the cumulative total body doses from L-Reactor operations and other nearby facilities; however, these doses are contained in the narrative rather than in a table similar to that of Table 5-19 in the draft EIS.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	estimates of the doses resulting from normal operation of the L-Reactor and its support facilities. Results of these calculations are shown in Appendix B, Tables B-7 through B-48. Summary of the dose commitments are shown in Figures 4-12, 4-13, 4-14, 4-17, 4-18, and 4-19 and Tables 5-11, 5-12, and 5-19. These results confirm that the calculated doses meet the radiological design objectives. We note that the Summary contains a Table S-1 which is a summary of the maximum individual and regional population total body doses from operation of the L-Reactor and SRP support facilities and is the same as Table 5-12. We believe it would be helpful to also include Table 5-19 in the Summary which contains the cumulative total body doses from L-Reactor operations and other nearby facilities. Inclusion of this table (as Table S-4) would provide the reader with the means to readily assess the additional impact of the L-Reactor operations as it relates to the cumulative impact on total-body individual and population doses from other nearby nuclear facilities.	
FL-3	3. Discussions in Section 4.2 and Appendix G on the environmental impact of postulated accidents are considered to be an adequate assessment of the radiation exposures and health impacts of atmospheric releases. It is noted in Appendix G.3.3 that an onsite Emergency Operations Center has been established and is maintained at SRP to provide immediate and informed response to mitigate the consequences of any site accidents. The presentation in Appendix H on offsite emergency planning is considered to (1) contain the essential elements for responding to emergency situations and (2) provide for notification and coordination with the South Carolina counties and the States of South Carolina and Georgia.	Comments noted.
FL-4	4. The radiological monitoring program as presented in Sections 6.1.1, 6.2.2, 6.2.3, and 6.2.4 appears to provide adequate sampling frequency in expected environmental exposure pathways. The analyses for specific radionuclides are considered sufficiently inclusive to (1) measure the extent of emissions from the Savannah River Plants, and (2) verify that such emissions meet the applicable radiation protection standards.	Comments noted.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
FL-5	We are pleased to note that DOE in July 1983 initiated a two-year program to determine the environmental effects and significance of cooling-water intake and discharge supporting operations of *all SRP production reactors* (C, K, L, *and P*) *and* the 400-D area coal fired plant. In particular, we are interested in the radionuclide remobilization, deposition, and effects and the radiation worker epidemiological studies. We would appreciate receiving copies of the study when they are available. Thank you for the opportunity to review and comment on this Draft Environmental Impact Statement. Sincerely yours, John C. Villforth Director National Center for Devices and Radiological Health	Copies of the study when it is available will be sent to your office.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF T. TRAVIS MEDLOCK Attorney General The State of South Carolina Columbia, South Carolina M. J. Sires, III Assistant Manager Health, Safety and Environment U.S. Department of Energy Savannah River Operations Office Post Office Box A Aiken, South Carolina 29801 Dear Mr. Sires: This office has reviewed the Draft Environmental Impact Statement prepared for the restart of the L-Reactor, as well as the comments submitted by other government agencies, private groups and private citizens. Based on this review, I have concluded that I concur with the recommendations of the Environmental Protection Agency and others that the Draft EIS is unsatisfactory in its present form. My areas of concern relate primarily to the impacts of reactor operations on groundwater and on the waters of Steel Creek, and to the reactor's production of hazardous waste. In my opinion, the Draft EIS should be strengthened in the following areas:	
FM-1	1. The need to obtain an NPDES permit under § 402 of the Federal Clean Water Act needs to be given fuller treatment. The prior NPDES permit did not exempt onsite streams; it ignored the reactor's impacts on those streams. The DEIS also should mention that a federal regulation, 40 CFR 122.47 (a) (2), prohibits the development of delayed compliance schedules for recommencing discharges such as the L-Reactor. In view of these deficiencies, the statement on p. 7-7 that DOE anticipates receiving the permit by the end of the year presents an inaccurate picture of the prospects for a legal restart.	Section 4.4.2 of the EIS, which discusses cooling-water mitigation alternatives, has been revised based on public comments received on the draft EIS. Specifically, Section 4.4.2 has been revised to provide a detailed discussion of additional combinations of various cooling-water systems. In Section 4.4.2, each of the cooling-water mitigation systems is evaluated for attaining the thermal discharge limits of the State of South Carolina. Section 4.4.2 and a revised Appendix I, Floodplain/Wetland Assessment, discuss the wetland impacts of each of the systems considered.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	2. Full consideration of the prospect of the L-Reactor receiving an NPDES permit is necessary to place the restart on a realistic timeframe which if followed, would permit other mitigation activities. Since it does not appear possible that the reactor restart could occur as soon as the DEIS projects, the DEIS should give further attention to mitigation in other areas.	The Department of Energy has been reviewing and evaluating alternative cooling-water systems for L-Reactor. Based on these reviews and evaluations, and consultations with representatives of the State of South Carolina regarding a mutually agreed upon compliance approach, a preferred cooling-water mitigation alternative is identified in this EIS. This preferred cooling-water alternative is to construct a 1000-acre lake before L-Reactor resumes operation, to redesign the reactor outfall, and to operate L-Reactor in a way that assures a balanced biological community in the lake. The Record of Decision prepared by the Department on this EIS will state the cooling-water mitigation measures that will be taken which will allow L-Reactor operation to be in compliance with the conditions of an NPDES permit to be issued by the State of South Carolina.
	3. The discussion of cooling-water alternatives should fully relate each proposed alternative to State temperature standards for Class B streams. A comparison of each alternative with the State standards would appear necessary for the decisionmaker or the public to understand the effectiveness of the listed alternatives.	
FM-2	4. With regard to groundwater contamination, a number of deficiencies have been noted in the comments of EPA and Dr. Sternberg, among others, which we adopt and incorporate by reference. In particular, while the DEIS mentions the 33% increase in effluent volume at the Fuel Fabrication and Chemical Processing Facilities, it should devote more attention to planned mitigation of the effects of present and future effluents. The restart should be more fully related to DOE's larger efforts to resolve groundwater problems at SRP. We would also note that Sen. Hollings, in sponsoring the bill which led to Congress' requiring an EIS, specifically suggested that groundwater mitigation options by covered in detail.	Several modifications have been made to this final EIS based on the comments received. In addition to the modifications to the discussion of cooling-water mitigation alternatives, this final EIS provides additional data concerning ground water as well as a description of the SRP ground-water programs in which the State of South Carolina is participating.
	These, in summary form, represent the comments of this office on the DEIS. We recommend that you give close consideration to the other comments submitted, especially those submitted by EPA and the various state agencies.	
	Please let me know what you plan to do with these and other comments submitted on the DEIS by State officials and others.	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	Thank you for your consideration. Sincerely yours T. Travis Medlock Attorney General TTM:rmr	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	STATEMENT OF V. I. MONTENYOHL January 30, 1984 Mr. M. J. Sires, III U.S. Department of Energy Savannah River Operations Office P.O. Box A Aiken, S.C. 29802 Dear Mel: First an apology. I looked over the various reports that you have sent me, but I haven't had time to write you comments until now. I'm sorry about the delay. However, I don't think a recital of all the things that kept me from writing until now would be helpful. First, a few comments about "Environmental Consequences of Restarting L-Reactor, Savannah River Plant, Aiken, S.C. - Volume 1 - August 1983:" 1. The first item listed under each topic in Section 2 might better be labelled "Allegations," rather than "Statements and Comments." A casual or careless reader might mistakenly assume that the "Statements and Comments" had some official basis. 2. In topic 2.5 "Ground Water," mention is made of the fact that new Type III storage tanks have not leaked. However, there is no mention of the solidification of the wastes in the older tanks; with the wastes solidified, the material does not leak from the tanks, even if a leak path should occur. 3. In the same topic it wasn't made clear that the chlorinated solvents that leaked into the ground water were degreasing solvents from metal fabrication, and not associated with the processing of radioactive materials. The same risk of leakage of degreasing solvents probably occurs at hundreds (perhaps thousands) of places in the country where such solvents are used.	Comments noted.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	4. The topic 2.10 "Radiation Dose Calculations" contains the usual allegations about the impact of long-term exposure to low-level radiation. DOE might well point out that most of varies with altitude, the releases from SRP can be expressed as the equivalent in radioactive exposure to an increase in local altitude. I recall having the calculation made several years ago for tritium releases; in that case, the result of the cumulative releases was comparable to increasing the altitude of SRP and neighboring area about 7 inches. If you had the calculation made for all releases, my guess would be that the total impact would be comparable to an altitude increase of a few feet. Obviously, if your critics were sincere, they should immediately urge the evacuation of Colorado and New Mexico. They should also worry about the exposure of flight crews on most airlines. My only other comments (which ties in with the other report you sent - "Draft Environmental Impact Statement, L-Reactor Operation, Savannah River Plant") is my concern over the acceptance by DOE of DHEC's point-of-origin monitoring. If this monitoring is done intelligently, it can be an advantage. However, if the matter is not handled with some skill, there is the risk of repeating the Vallecitos problem. You probably recall that GE used to have a power reactor test station at Vallecitos, California. The site was quite small. The state of California ruled that GE could not release any radioactivity beyond the site boundary. Now it happens that well water in the area has a small amount of natural radioactivity in it. As a consequence, GE could not pump water from its well and release it upon the ground, because it might run across the fence line and thus violate the control ruling, even though the water had never been in the reactor building. Ironically, the next-door neighbor could have a well that he used to water the lawn without being in violation of the regulation. Hence, one can't help who was being protected and from what by such a regulation. If the close-in monitoring is used simply to assure maximum sensitivity and to assure that no release of harmful proportions can reach the public, then it can be an advantage. However, if it is interpreted in such a fashion that the limit for the monitoring site become the same as the limit for general exposure of the public, then it may be impractical.	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	Thanks for sending the reports. Sincerely, V.I. Montenyohl 1050 Two Notch Road Aiken, SC 29801	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses

CENTRAL SAVANNAH RIVER AREA
REGIONAL CLEARINGHOUSE MEMORANDUM
A-95 REVIEW AND COMMENT

TO:
Mr. M. J. Sires
Dept. of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29801

FROM: Mark Senn
CSRA Planning and Development Commission

SUBJECT: RESULTS OF REGIONAL CLEARINGHOUSE REVIEW

Applicant: Department of Energy
Project: L-Reactor Operation - Aiken, S.C.
Clearinghouse Control Number: GA. 83-09-27-001

The Regional - level review of the above referenced project has been completed and the following comments made: — Comments noted.

____x____ This proposal is considered to be consistent with *Regional and local plans, programs, and policies* concerning such projects.

_____ This proposal is recommended for further development subject to the following recommendations.

_____ This proposal is not recommended for further development based on the following rationale.